requested time period of the reservation requested by the customer; and the computer refers to the status data and identifies, from among start candidate times at which the reservation of the requested time period is acceptable, the start candidate time at which a difference time period between the start candidate time and an end time of a reservation unacceptable time period immediately before the start candidate time is zero or equal to or more than a predetermined time period and a difference time period between a time at which the requested time period has elapsed from the start candidate time and a start time of the reservation unacceptable time period immediately after the time is zero or equal to or more than the predetermined time period; and causing the computer to display the identified start candidate time to the customer.

[0012]

An aspect of the present invention is a program that causes a computer to function as the above reservation assistance.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0013]

The present invention can provide a technique that enables accepting of more reservations.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

[Fig. 1] Fig. 1 is a diagram explaining a system configuration of a processing system and function blocks of a reservation assistance device according to an embodiment of the present invention.

[Fig. 2] Fig. 2 is an example of a status display screen displayed by the reservation assistance device.

[Fig. 3] Fig. 3 is an example of a presentation screen displayed by the reservation assistance device.

[Fig. 4] Fig. 4 is a diagram explaining an example of a data structure and data of status data.

[Fig. 5] Fig. 5 is an example of a setting screen in which information included in setting data is set.

[0015]

An embodiment of the present invention is explained below with reference to the drawings. The same parts in illustration of the drawings are denoted by the same reference numerals, and explanation thereof is omitted.

[0016]

A reservation in the embodiment of the present invention is an appointment of providing a service from a reservation start time to a reservation end time that is agreed between a customer and a staff. The reservation secures resources such as a place, a staff, and the like for the customer in a shop such as a beauty salon, a nail salon, a massage salon, a dental clinic, a restaurant, a karaoke box, or a bowling alley. Although the place where the reservation is provided is referred to as shop in the embodiment of the present invention, the place is not limited to the shop. A reservation assistance device 1 is not limited to use in the shop, and may be used in businesses in general in which reservations are accepted such as visiting-type businesses that provide repair services by visiting a place of the customer and on-line type businesses such as language lessons and call taker using the Internet.

[0017]

In the embodiment of the present invention, the reservation start time and the reservation end time are a start time and an end time of the reservation agreed between the customer and the staff. A reservation time period is a duration of a time period from the reservation start time to the reservation end time, and the customer receives services from the staff within the reservation time period. The reservation start time, the reservation end time, and the reservation time period sometimes vary from a requested start time, a requested end time, and a requested time period inputted by the customer at a moment of reservation, due to a proposal by the reservation assistance device 1 and acceptance of the proposal by the customer. A unit time period is a minimum unit of identification of times such as the reservation start time, the reservation end time, the reservation time period, the requested start time, the requested end time, and the requested time period in the reservation assistance device 1.

[0018]

association with one another. The reservation data 15 may also be used to identify a method of contacting the customer such as a mail address of the customer.

[0040]

The staff data 16 is data for identifying the shift hours and the break hours of each staff. The staff data 16 may also be used to identify a method of contacting a staff such as a mail address of the staff.

[0041]

The obtaining unit 21 obtains the requested start time, the requested end time, and the requested time period of the reservation requested by the customer. When the obtaining unit 21 obtains the requested start time and the requested practice contents of the reservation from the customer, the obtaining unit 21 may identify the requested time period based on the practice contents, and identify the requested end time based on the requested start time and the requested time period. The obtaining unit 21 outputs the requested reservation data 11 including the requested start time, the requested end time, and the requested time period.

[0042]

The proposal unit 22 refers to the status data 12, and checks whether the reservation is acceptable in the period between the requested start time and the requested end time. When the period between the requested start time and the requested end time includes the reservation unacceptable time period in the status data 12, the proposal unit 22 sends back a reply indicating that the reservation is unacceptable. When the reservation is acceptable in the period between the requested start time and the requested end time and the in-between time period occurs, the proposal unit 22 outputs a proposal for eliminating the in-between time period. In this case, if the time zone to be excluded as the target of the determination of the in-between time period is set in the exclusion control portion P301 or the like of Fig. 5, the proposal unit 22 determines presence or absence of the in-between time period in a time zone to be a target of the determination of the in-between time period.

[0043]

First, the case where the in-between time period is present before the requested

[0047]

In this case, the proposal unit 22 sets the reservation end time of the new reservation data 14 to a time at which the requested time period has elapsed from the reservation start time. Specifically, the proposal unit 22 sets the reservation end time to 15:00 that is a time at which the requested time period of one hour has elapsed from the reservation start time 14:00.

[0048]

Alternatively, the proposal unit 22 may propose extension of the requested time period to the customer terminal 2 without changing the requested end time. When the instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22 may set the reservation end time of the new reservation data 14 to the requested end time, and set the requested time period to a time period obtained by adding a difference time period (forwarding time period) between the requested start time and the reservation start time to the requested time period. For example, when the requested time is determined depending on practice contents of a beauty parlor or the like in the reservation, the proposal unit 22 proposes an additional practice such as a treatment as the extension of the requested time period, without changing the requested end time. When the instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22 sets the reservation end time in the new reservation data 14 to the requested end time, sets the requested time period to an hour and a half obtained by adding the forwarding time period of 30 minutes to the requested time period of one hour, and generates the new reservation data 14. The reservation assistance device 1 can thereby eliminate the in-between time period before the requested start time, and also receive the reservation of additional practice.

[0049]

Next, explanation is given of the case where the in-between time period is present after the requested end time. When the in-between time period occurs after the requested end time, the proposal unit 22 proposes postponing of the requested end time.

[0050]

When the difference time period between the requested end time and the start

time of the reservation unacceptable time period immediately after the requested end time is equal to or more than the unit time period and is less than the predetermined time period, the proposal unit 22 determines that the in-between time period is present after the requested end time. In this case, the proposal unit 22 outputs a proposal of changing the requested end time to the start time of the reservation unacceptable time period immediately after the requested end time.

[0051]

In the example illustrated in Fig. 2, the proposal unit 22 determines a period from 15:30 that is the requested end time to 16:00 that is the start time of the reservation unacceptable time period immediately after the requested end time as the in-between time period. The proposal unit 22 displays a proposal screen that proposes a change of the requested end time from 15:30 to 16:00 on the customer terminal 2. When the instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22 generates the new reservation data 14 in which the reservation end time is set to 16:00 that is postponed from the requested end time. The in-between time period after the requested end time can be thereby eliminated.

[0052]

In this case, the proposal unit 22 sets the reservation start time of the new reservation data 14 to a time the requested time period before the reservation end time. Specifically, the proposal unit 22 sets the reservation start time to 15:00 that is the requested time period of one hour before the reservation end time 16:00.

[0053]

Alternatively, the proposal unit 22 may propose extension of the requested time period to the customer terminal 2 without changing the requested start time. When the instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22 may set the reservation start time of the new reservation data 14 to the requested start time, and set the requested time period to a time period obtained by adding a difference time period (postponing time period) between the requested end time and the reservation end time to the requested time period. For example, when the requested time is determined depending on practice contents of a beauty parlor or the like in the

reservation, the proposal unit 22 proposes an additional practice such as a treatment as the extension of the requested time period, without changing the requested start time. When the instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22 sets the reservation start time in the new reservation data 14 to the requested end time, sets the requested time period to an hour and a half obtained by adding the postponing time period of 30 minutes to the requested time period of one hour, and generates the new reservation data 14. The reservation assistance device 1 can thereby eliminate the in-between time period after the requested start time, and also receive the reservation of additional practice.

[0054]

When the proposal unit 22 determines that the in-between time periods are present in both of a period before the requested start time and a period after the requested end time in the requested reservation data 11, the proposal unit 22 may present the proposal of advancing the requested start time and the proposal of postponing the requested end time to the customer as in Fig. 3. Moreover, the proposal unit 22 may present the proposal of extending the requested time period to the customer in addition to the proposals illustrated in Fig. 3.

[0055]

Although explanation is given of the case where the proposal unit 22 displays the proposal screen V2 in which the start time of the reservation is selected such that the in-between time period is eliminated, the proposal unit 22 may display choices of the start time of the reservation that can reduce the in-between time period. For example, in the example illustrated in Fig. 3, a choice of changing the start time to 14:15 that is shifted by the unit time period within a time period in which the in-between time period occurs and a choice of changing the start to 14:45 may be displayed. The in-between time period cannot be eliminated but can be reduced, and a new reservation can be received in some cases.

[0056]

When the proposal unit 22 generates the new reservation data 14 according to the reply of the customer, the proposal unit 22 inputs the generated new reservation data

In step S102, the reservation assistance device 1 determines whether or not the in-between time period is present before the requested start time. When the in-between time period is absent, the processing proceeds to step S104. When the in-between time period is present, in step S103, the reservation assistance device 1 sets the end time of the reservation unacceptable time period immediately before the requested start time, as the start candidate time, and proceeds to step S104. In the example illustrated in Fig. 2, the reservation assistance device 1 sets the end time 14:00 of the reservation unacceptable time period immediately before the requested start time 14:30, as the start candidate time.

[0064]

In step S104, the reservation assistance device 1 determines whether or not the in-between time period is present after the requested end time. When the in-between time period is absent, the processing proceeds to step S106. When the in-between time period is present, in step S105, the reservation assistance device 1 sets a time the requested time period before the start time of the reservation unacceptable time period immediately after the requested end time, as the start candidate time, and proceeds to step S106. In the example illustrated in Fig. 2, the reservation assistance device 1 sets the time 15:00 the requested time period of one hour before the start time 16:00 of the reservation unacceptable time period immediately after the requested end time 15:30, as the start candidate time.

[0065]

In step S106, the reservation assistance device 1 determines whether or not the start candidate time is set in step S103 or step S105. When the start candidate time is not set, the processing proceeds to step S110. When the start candidate time is set, in step S107, the reservation assistance device 1 outputs the proposal of the change to the start candidate time, to the customer terminal 2. When multiple times are set as the start candidate time, the reservation assistance device 1 sends each of the multiple times set as the start candidate time to the customer terminal 2.

[0066]

When the reservation assistance device 1 receives a reply of changing the requested start time from the customer terminal 2 in step S108, the processing proceeds

to S109. When the reservation assistance device 1 receives a reply of not changing the requested start time, the processing proceeds to step S110.

[0067]

In step S109, the reservation assistance device 1 generates the new reservation data 14 in which the start candidate time is set as the requested start time. When there are multiple start candidate times, the reservation assistance device 1 sets the start candidate time selected in the customer terminal, as the reservation start time.

[0068]

In step S110, the reservation assistance device 1 generates the new reservation data 14 in which the requested start time is set as the requested start time.

[0069]

When the new reservation data 14 is generated in step S109 or step S110, the reservation assistance device 1 terminates the processing.

[0070]

When the in-between time period is present before the requested start time requested by the customer or after the requested end time requested by the customer, the reservation assistance device 1 according to the embodiment of the present invention proposes a change of the reservation start time or the reservation end time to the customer to eliminate the in-between time period. When the instruction of accepting the proposal is inputted from the customer terminal 2, the reservation assistance device 1 generates the new reservation data 14 in which the reservation start time is set such that the in-between time period is eliminated, and accepts the reservation. This can eliminate the in-between time period, and allows accepting of more reservations.

[0071]

(First Modified Example)

Explanation is given of the case where the reservation assistance device 1 according to the embodiment of the present invention proposes the change of the reservation such that the in-between time period is eliminated, at the moment of accepting of reservation from the customer. Meanwhile, a reservation assistance device 1a according to a first modified example searches for the presence or absence of the in-

between time period at an arbitrary timing after the accepting of reservation, and when the in-between time period is present, proposes a change of reservations before and after the in-between time period. The reservation assistance device 1a according to the first modified example may be combined with the reservation assistance device 1 according to the embodiment of the present invention to eliminate the in-between time period at the moment of reservation and at an arbitrary timing, or may not be combined with the reservation assistance device 1 according to the embodiment of the present invention to eliminate the in-between time period only at an arbitrary timing.

[0072]

The reservation assistance device 1a according to the first modified example is explained with reference to Fig. 10. The reservation assistance device 1a illustrated in Fig. 10 is different from the reservation assistance device 1 illustrated in Fig. 1 in that the reservation assistance device 1a includes no obtaining unit 21 and includes notification data 17 instead of the new reservation data 14.

[0073]

When a proposal unit 22a refers to the status data 12 and the difference time period between the first time period in which the reservation is unacceptable and the second time period in which the reservation is unacceptable and that is immediately after the first time period is equal to or more than the unit time period and is less than the predetermined time period, the proposal unit 22a proposes a change of the first time period or the second time period.

[0074]

For example, assume that the reservation P104 is fixed in the status display screen V1 illustrated in Fig. 2. In this case, the break P102 of the staff is the first time period, and the reservation P104 is the second time period. The proposal unit 22a determines whether or not the difference time period between the first time period and the second time period is equal to or more than the unit time period and is less than the predetermined time period. In the example illustrated in Fig. 2, the difference time period is 30 minutes that is a difference between 14:00 being the end time of the first time period and 14:30 being the start time of the second time period. The difference time

period of 30 minutes is equal to or more than the unit time period of 15 minutes, and is less than the predetermined time period of one hour. Accordingly, the proposal unit 22a determines that the in-between time period is present between the break P102 that is the first time period and the reservation P104 that is the second time period, and proposes the change of the first time period or the second time period to terminals of persons who have the right to change the respective time periods.

[0075]

When the first time period is the change target and the reservation is unacceptable in the first time period due to the reservation of the customer, the proposal unit 22a outputs a proposal of changing the reservation end time to the start time of the second time period, to the customer terminal 2 of the customer who made the reservation for the first time period. When an instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22a generates the notification data 17 for changing the reservation end time of the first time period to the start time of the second time period, and inputs the notification data 17 into the update unit 23.

[0076]

When the first time period is the change target and the reservation is unacceptable for the first time period due to the break of the staff, the proposal unit 22a outputs a proposal of changing the end time of the break to the start time of the second time period, to the staff terminal 3 of this staff. When an instruction of accepting the proposal is inputted from the staff terminal 3, the proposal unit 22a generates the notification data 17 for changing the break end time of the first time period to the start time of the second time period, and inputs the notification data 17 into the update unit 23. Although the case where the proposal is outputted to the staff terminal 3 is explained herein, the proposal may be outputted to an output device viewable by the staff such as an output device 906 of the reservation assistance device 1a.

[0077]

Although explanation is given of the case where the first time period is postponed such that no in-between time period occurs between the first time period and the second time period, the present invention is not limited to this. For example, when the in-

between time period is present between the first time period and the reservation unacceptable time period immediately before the first time period, the proposal unit 22a may propose a change of the start time of the first time period to the end time of the reservation unacceptable time period immediately before the first time period. When the instruction of accepting the proposal is inputted from the customer terminal 2 or the staff terminal 3, the proposal unit 22a generates the notification data 17 for changing the start time of the first time period to the end time of the reservation unacceptable time period immediately before the first time period, and inputs the notification data 17 into the update unit 23.

[0078]

When the second time period is the change target and the reservation is unacceptable for the second time period due to the reservation of the customer, the proposal unit 22a outputs a proposal of changing the reservation start time to the end time of the first time period, to the customer terminal 2 of the customer who made the reservation for the second time period. When an instruction of accepting the proposal is inputted from the customer terminal 2, the proposal unit 22a generates the notification data 17 for changing the reservation start time of the second time period to the end time of the first time period, and inputs the notification data 17 into the update unit 23.

[0079]

When the second time period is the change target and the reservation is unacceptable for the second time period due to the break of the staff, the proposal unit 22a outputs a proposal of changing the start time of the break to the end time of the first time period, to the staff terminal 3 of this staff. When an instruction of accepting the proposal is inputted from the staff terminal 3, the proposal unit 22a generates the notification data 17 for changing the break start time of the second time period to the end time of the first time period, and inputs the notification data 17 into the update unit 23.

[0080]

Although explanation is given of the case where the second time period is advanced such that no in-between time period occurs between the first time period and the second time period, the present invention is not limited to this. For example, when

the in-between time period is present between the second time period and the reservation unacceptable time period immediately after the second time period, the proposal unit 22a may propose a change of the end time of the second time period to the start time of the reservation unacceptable time period immediately after the second time period. When the instruction of accepting the proposal is inputted from the customer terminal 2 or the staff terminal 3, the proposal unit 22a generates the notification data 17 for changing the end time of the second time period to the start time of the reservation unacceptable time period immediately after the second time period, and inputs the notification data 17 into the update unit 23. The update unit 23 updates the reservation data 15, the staff data 16, and the status data 12 according to the notification data 17.

[0081]

In this case, the proposal unit 22a may propose a change of the reservation or the break in the order determined in advance for the first time period and the second time period.

[0082]

For example, assume that one of the first time period and the second time period is the break hours of the staff, and the other is the reservation time period of the customer. First, the proposal unit 22a may proposes the change of the break hours of the staff, and when the proposal is not accepted, propose the change of the reservation of the customer.

[0083]

The proposal unit 22a may determine a proposal destination such that no further proposal is made to a customer to which a proposal has been made in the past or a customer who did not accept the proposal. The proposal unit 22a holds the number of times of proposal, the number of times of unacceptance of proposal, the number of times of acceptance of proposal, and the like for each customer in the reservation data 15 or the status data 12.

[0084]

For example, when the proposal unit 22a has made the proposal predetermined times or more to a customer who has made the reservation for the first time period, the proposal unit 22a does not make the proposal to the customer of the first time period, and proposes a change of the second time period. Moreover, when the reservations for the

requested, in addition to the requested time period.

[0098]

The identification unit 24 identifies the start candidate times of the reservation at which the reservation is acceptable for the requested time period of the reservation and at which no in-between time period occurs in a period before or after the reservation. Specifically, the identification unit 24 identifies the start candidate times of the reservation by excluding the start candidate times of the reservation at which the in-between time period occurs in both of the periods before and after the reservation from the start candidate times of the reservation at which the reservation is acceptable for the requested time period of the reservation. In the case where the obtaining unit 21 also obtains the requested date, the identification unit 24 identifies the start candidate times in the requested date. Although the case where the start candidate times of the reservation at which no in-between time period occurs in at least one of the periods before and after the reservation is at least identified is explained in the second modified example, the start candidate times of the reservation at which no in-between time period occurs in both of the periods before and after the reservation may be identified.

[0099]

The identification unit 24 refers to the status data 12, and identifies the start candidate time at which the difference time period between the start candidate time and the end time of the reservation unacceptable time period immediately before the start candidate time is zero or equal to or more than the predetermined time period or the start candidate time at which the difference time period between a time at which the requested time period has elapsed from the start candidate time to the start time of the reservation unacceptable time period immediately after this time is zero or equal to or more than the predetermined time period, from the start candidate times at which the reservation of the requested time period is acceptable.

[0100]

The display unit 25 displays the start candidate times identified by the identification unit 24, on the customer terminal 2. The reservation assistance device 1b receives the start time specified from the start candidate times by the customer from the

customer terminal 2, and generates the new reservation data 14 in which: the reservation start time is set to the start time specified by the customer; the reservation end time is set to a time at which the requested time period has elapsed from the start time specified by the customer; and the reservation time period is set to the requested time period. The reservation assistance device 1b updates the status data 12 and the reservation data 15 according to the new reservation data 14.

[0101]

Explanation is given of processing in the case where the identification unit 24 identifies the start candidate times of the reservation by excluding the start candidate times of the reservation at which the in-between time period occurs in both of the periods before and after the reservation in the second modified example. The identification unit 24 identifies the start candidate times of the reservation by allowing the case where no in-between time period occurs in both of the periods before and after the reservation, the case where the in-between time period occurs in the period before the reservation but not in the period after the reservation, and the case where the in-between time period occurs in the period after the reservation but not in the period before the reservation.

[0102]

Explanation is given of processing of the identification unit 24 in the case where the reservation P101, the break P102, and the reservation P103 are fixed in the example illustrated in Fig. 2 and the customer specifies one hour as the requested time period.

[0103]

In the example illustrated in Fig. 2, the start candidate times at which the reservation for the time period of one hour requested by the customer is acceptable are 10:30, 10:45, 11:00, 11:15, 11:30, 11:45, 12:00, 14:00, 14:15, 14:30, 14:45, and 15:00.

[0104]

When the start candidate time is set to 10:30, the difference time period between the start candidate time 10:30 and the end time 10:30 of the reservation unacceptable time period immediately before the start candidate time is zero, and no in-between time period occurs. When the start candidate time is set to 10:45, the difference time period between

predetermined condition that does not allow the in-between time period is satisfied, the identification unit 24 may identify the start candidate times at which no in-between time period occurs in both of the periods before and after the reservation time period.

[0110]

Explanation is given of the case where the reservation assistance device 1b accepts only the reservation for which no in-between time period occurs in both of the periods before and after the reservation time period. In this case, the identification unit 24 identifies only the case where no in-between time period occurs in both of periods before and after the reservation, as the start candidate time. The case where the in-between time period occurs in the period before the reservation but not in the period after the reservation and the case where the in-between time period occurs in the period after the reservation but not in the period before the reservation are excluded from the start candidate times.

[0111]

In the example illustrated in Fig. 2, the start candidate times at which the reservation for the time period of one hour requested by the customer is acceptable are 10:30, 10:45, 11:00, 11:15, 11:30, 11:45, 12:00, 14:00, 14:15, 14:30, 14:45, and 15:00. When 10:45 and 11:00 among these start candidate times are each set as the start candidate time, no in-between time period occurs in the period after the time at which the requested time period of one hour has elapsed the start candidate time, but the in-between time period occurs in the period before the start candidate time. When 11:30 and 11:45 are each set as the start candidate time, no in-between time period occurs in the period before the start candidate time, but the in-between time period occurs in the period after the time at which the requested time period of one hour has elapsed from the start candidate time. When 11:15, 14:15, 14:30, and 14:45 are each set as the start candidate time, the in-between time period occurs in both of the period before the start candidate time and the period after the time at which the requested time period of one hour has elapsed from the start candidate time.

[0112]

Accordingly, when the reservation assistance device 1b accepts only the

[0133]

As illustrated in Fig. 16(a), the display unit 25 displays the start candidate times at which no in-between time period occurs in the periods before and after the reservation time period, in the list box of the selection screen V6 for selecting the reservation start time. The start candidate times at which no in-between time period occurs in at least one of the periods before and after the reservation time period are 10:30, 10:45, 11:00, 11:30, 11:45, 12:00, 14:00, and 15:00 as explained in the second modified example.

[0134]

The identification unit 24 of the reservation assistance device 1 identifies, in addition to the start candidate times at which no in-between time period occurs in at least one of the periods before and after the reservation time period, sub-start candidate times at which the in-between time period occurs in both of periods before and after the reservation time period. The sub-start candidate times are each the start candidate time at which the difference time period between the start candidate time and the end time of the reservation unacceptable time period immediately before the start candidate time is less than the predetermined time period and the difference time period between the time at which the requested time period has elapsed from the start candidate time and the start time of the reservation unacceptable time period immediately after this time is less than the predetermined time period, among the start candidate times at which the reservation of the requested time period specified by the customer is acceptable.

[0135]

As illustrated in Fig. 16(b), the display unit 25 displays the start candidate times at which no in-between time period occurs in the periods before and after the reservation time period in the list box of a selection screen V6a in response to an instruction of the customer, and when a development instruction portion P501 provided between 11:00 and 11:30 is selected in the selection screen V6 of Fig. 16(a), displays the sub-start candidate time in the selection screen V6a illustrated in Fig. 16 (b). In Fig. 16(b), 11:15 is displayed as the sub-start candidate time between the start candidate times 11:00 and 11:30. The customer can thereby select not only the start candidate times at which no in-between time period occurs, but also the sub-start candidate times at which the in-

between time period occurs.

[0136]

Specifically, when the sub-start candidate time is present between two adjacent start candidate times among the start candidate times, the display unit 25 displays the development instruction portion corresponding to the two adjacent start candidate times in the list box. When the development instruction portion is selected, the display unit 25 displays the sub-start candidate time between the two adjacent start candidate times in the list box.

[0137]

In the selection screen V6 of Fig. 16(a), the development instruction portion P501 is displayed between the start candidate times 11:00 and 11:30. A development instruction portion P502 is displayed between the start candidate times 12:00 and 14:00. A development instruction portion P503 is displayed between the start candidate times 14:00 and 15:00.

[0138]

When the customer clicks the development instruction portion P501 in this case, the display unit 25 displays 11:15 as illustrated in Fig. 16(b) as the sub-start candidate time corresponding to the development instruction portion 501.

[0139]

Similarly, when the customer clicks the development instruction portion P502, the display unit 25 displays times in increments of the unit time period from 12:15 to 13:45, as the sub-start candidate times corresponding to the development instruction portion P502. When the customer clicks the development instruction portion P503, the display unit 25 displays times in increments of the unit time period from 14:15 to 14:45, as the sub-start candidate times corresponding to the development instruction portion P503. Note that the unit time period is 15 minutes in the present disclosure.

[0140]

In the selection screen V6a of Fig. 16(b), collapse instruction portions P501a and P501b are displayed to correspond to the portions where the sub-start candidate times are displayed. When the collapse instruction portion P501a or P501b is selected, the display unit 25 displays the selection screen V6 illustrated in Fig. 16(a). The display unit 25

cancels display of the sub-start candidate times and the collapse instruction portions P501a and P501b, and displays the development instruction portion P501 in the selection screen V6.

[0141]

Although the development instruction portion P501 and the like are icons in which an upward arrow and a downward arrow are vertically arranged in Fig. 16, the present invention is not limited to this. Although explanation is given of the case where the collapse instruction portion P501a is an icon including a downward arrow while the collapse instruction portion P501b is an icon including an upward arrow and these icons are displayed, respectively, above and below a display portion of the sub-start candidate times, the present invention is not limited to this. Moreover, although the case where the start candidate times and the sub-start candidate times are displayed in the list box is explained in Fig. 16, the present invention is not limited to this. The start candidate times and the sub-start candidate times may be displayed in any way as long as only the start candidate times or the start candidate times and the sub-start candidate times are displayed in response to an instruction of the customer, and one of the times is identified as the reservation start time.

[0142]

Processing of the reservation assistance device 1 according to the fourth modified example is explained with reference to Figs. 17 to 18.

[0143]

In step S71, the reservation assistance device 1 obtains the requested time period and the requested date for which the customer requests to make the reservation.

[0144]

The reservation assistance device 1 performs processing of step S72 to step S76 for each of target times of the requested date. In this case, the target times are set every unit time period.

[0145]

In step S72, the reservation assistance device 1 refers to the status data 12, and determines whether or not the reservation is acceptable in a period of the requested time

period from the target time. When the period includes the reservation unacceptable time period, the reservation assistance device 1 performs the processing of S72 for the next target time. When the reservation is acceptable, the processing proceeds to step S73.

[0146]

In step S73, the reservation assistance device 1 determines whether or not the in-between time period occurs before the target time. When the in-between time period occurs, the processing proceeds to step S74. Meanwhile, when no in-between time period occurs before the target time, the processing proceeds to step S75.

[0147]

In step S74, the reservation assistance device 1 determines whether or not the in-between time period occurs after elapse of the requested time period from the target time. When no in-between time period occurs, the processing proceeds to step S75. When the in-between time period occurs, the processing proceeds to step S76.

[0148]

In step S75, the reservation assistance device 1 determines that no in-between time period occurs in at least one of the periods before and after the target time, and sets the target time as the start candidate time. Meanwhile, in step S76, the reservation assistance device 1 determines that the in-between time period occurs in both of the periods before and after the target time, and sets the target time as the sub-start candidate time.

[0149]

When the processing from step S72 to S76 is completed for each target time, the processing proceeds to step S81. Note that, when the reservation is unacceptable for all target times, the reservation assistance device 1 displays this information on the customer terminal 2.

[0150]

In step S81, the reservation assistance device 1 first displays the start candidate times identified in step S75 on the customer terminal 2. In step S82, the reservation assistance device 1 determines whether or not any of the sub-start candidate times identified in step S76 is present between the adjacent start time candidates. When the

sub-start time candidate is present, in step S83, the reservation assistance device 1 displays the development instruction portion on the customer terminal 2 in association with the adjacent start candidate times.

[0151]

In step S84, when an instruction inputted from the customer terminal 2 is selection of the development instruction portion, the processing proceeds to step S85. In step S85, the reservation assistance device 1 displays the sub-start candidate time between the two start candidate times corresponding to the selected development instruction portion and the collapse instruction portion for hiding the sub-start candidate time, on the customer terminal 2.

[0152]

When the instruction inputted from the customer terminal 2 is selection of the collapse instruction portion in step S84, the processing proceeds to step S86. In step S86, the reservation assistance device 1 hides the sub-start candidate time corresponding to the selected collapse instruction portion, and displays the development instruction portion.

[0153]

When the instruction inputted from the customer terminal 2 is selection of the time in step S84, the processing proceeds to step S87. In step S87, the reservation assistance device 1 generates the new reservation data 14 with the selected time set as the reservation start time.

[0154]

In the fourth modified example, the reservation assistance device 1 first displays the start candidate times at which no in-between time period occurs in at least one of the periods before and after the reservation time period as the reservation acceptable times, and also displays the icon for displaying the sub-start candidate times at which the in-between time period occurs in the periods before and after the reservation time period, on the customer terminal 2. Moreover, the reservation assistance device 1 displays the sub-start candidate times in addition to the start candidate times in response to selection of this icon.

CLAIMS

[Claim 1] A reservation assistance device comprising:

a storage device configured to store status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods;

an obtaining unit configured to obtain a requested start time and a requested end time of the reservation requested by the customer; and

a proposal unit configured to refer to the status data, and when the reservation is acceptable in a period from the requested start time to the requested end time and a difference time period between the requested start time and an end time of a reservation unacceptable time period immediately before the requested start time is equal to or larger than the unit time period and is less than a predetermined time period, output a proposal of changing the requested start time to the end time of the reservation unacceptable time period immediately before the requested start time, to the customer.

[Claim 2] The reservation assistance device according to claim 1, wherein, when a difference time period between the requested end time and a start time of the reservation unacceptable time period immediately after the requested end time is equal to or larger than the unit time period and is less than the predetermined time period, the proposal unit outputs a proposal of changing the requested end time to the start time of the reservation unacceptable time period immediately after the requested end time.

[Claim 3] A reservation assistance device comprising:

a storage device configured to store status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods; and

a proposal unit configured to refer to the status data, and when a difference time period between a first time period in which the reservation is unacceptable and a second time period in which the reservation is unacceptable and that is immediately after the first time period is equal to or larger than the unit time period and is less than a predetermined time period, propose a change of the first time period or the second time period.

[Claim 4] The reservation assistance device according to claim 3, wherein, when the reservation is unacceptable in the first time period due to the reservation of the customer, the proposal unit outputs a proposal of changing a reservation end time to a start time of the second time period, to the customer.

[Claim 5] The reservation assistance device according to claim 3, wherein, when the reservation is unacceptable in the first time period due to a break of a staff, the proposal unit outputs a proposal of changing an end time of the break to a start time of the second time period, to the staff.

[Claim 6] The reservation assistance device according to claim 3, wherein, when the proposal unit has made the proposal a predetermined number of times or more to the customer who has made the reservation for the first time period, the proposal unit proposes a change of the second time period.

[Claim 7] The reservation assistance device according to claim 4, wherein the customer is a customer who has answered in advance that a time change is possible.

[Claim 8] The reservation assistance device according to claim 7, wherein, when the difference time period is reduced or is made to be equal to or more than the predetermined time period by time change contents allowed by the customer in advance, the proposal unit makes the proposal.

[Claim 9] A reservation assistance device comprising:

a storage device configured to store status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods;

an obtaining unit configured to obtain a requested time period of the reservation requested by the customer; and

an identification unit configured to refer to the status data and identify, from

among start candidate times at which the reservation of the requested time period is acceptable, the start candidate time at which a difference time period between the start candidate time and an end time of a reservation unacceptable time period immediately before the start candidate time is zero or equal to or more than a predetermined time period or a difference time period between a time at which the requested time period has elapsed from the start candidate time and a start time of the reservation unacceptable time period immediately after the time is zero or equal to or more than the predetermined time period; and

a display unit configured to display the start candidate time identified by the identification unit, to the customer.

[Claim 10] The reservation assistance device according to claim 9, wherein

the identification unit further identifies, from among the start candidate times at which the reservation of the requested time period is acceptable, the start candidate time at which the difference time period between the start candidate time and the end time of the reservation unacceptable time period immediately before the start candidate time is less than the predetermined time period and the difference time period between the time at which the requested time period has elapsed from the start candidate time and the start time of the reservation unacceptable time period immediately after the time is less than the predetermined time period, as the sub-start candidate time, and

the display unit further displays the sub-start candidate time in response to an instruction of the customer.

[Claim 11] The reservation assistance device according to claim 10, wherein

when the sub-start candidate time is present between two adjacent start candidate times among the start candidate times, the display unit displays a development instruction portion such that the development instruction portion corresponds to the two adjacent start candidate times, and

when the development instruction portion is selected, the display unit displays the sub-start candidate time between the two adjacent start candidate times.

[Claim 12] A reservation assistance method comprising:

a computer stores status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods;

the computer obtains a requested start time and a requested end time of the reservation requested by the customer; and

the computer refers to the status data, and when the reservation is acceptable in a period from the requested start time to the requested end time and a difference time period between the requested start time and an end time of a reservation unacceptable time period immediately before the requested start time is equal to or larger than the unit time period and is less than a predetermined time period, outputs a proposal of changing the requested start time to the end time of the reservation unacceptable time period immediately before the requested start time.

[Claim 13] A reservation assistance method comprising:

a computer stores status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods; and

the computer refers to the status data, and when a difference time period between a first time period in which the reservation is unacceptable and a second time period in which the reservation is unacceptable and that is immediately after the first time period is equal to or larger than the unit time period and is less than a predetermined time period, proposes a change of the first time period or the second time period.

[Claim 14] A reservation assistance method comprising:

a computer stores status data indicating whether or not a reservation from a customer is acceptable for each of unit time periods;

the computer obtains a requested time period of the reservation requested by the customer; and

the computer refers to the status data and identifies, from among start candidate times at which the reservation of the requested time period is acceptable, the start

candidate time at which a difference time period between the start candidate time and an end time of a reservation unacceptable time period immediately before the start candidate time is zero or equal to or more than a predetermined time period and a difference time period between a time at which the requested time period has elapsed from the start candidate time and a start time of the reservation unacceptable time period immediately after the time is zero or equal to or more than the predetermined time period; and

causing the computer to display the identified start candidate time to the customer.

[Claim 15] A program that causes a computer to function as the reservation assistance device according to one of claims 1 to 11.